List of Contents

NUMBER 1

Graeme Bonham-Carter	1	Editorial
Boyan Brodaric	5	The design of GSC Field*Log*: ontology-based software for computer aided geological field mapping*
Keith N. Sircombe	21	AGEDISPLAY: an EXCEL workbook to evaluate and display univariate geochronological data using binned frequency histograms and probability density distributions*
José M. Vacas Peña and José R. Martínez Catalán	33	A computer program for the simulation of folds of different sizes under the influence of gravity*
Arda Arcasoy, Vedat Toprak and Nuretdin Kaymakçi	45	Comprehensive Strip Based Lineament Detection Method (COSBALID) from point-like features: a GIS approach
Chris H. Okubo, Richard A. Schultz and Greggory S. Stefanelli	59	Gridding Mars Orbiter Laser Altimeter data with GMT: effects of pixel size and interpolation methods on DEM integrity
Philippe Gaillot, Jane T. Punongbayan and Brice Rea	73	Map_plot and bgg_plot: software for integration of geoscience datasets*
Patrick Wong and Sean Boerner	91	Ranking geological drivers in reservoir problems: a comparison study
G.R.J. Cooper and D.R. Cowan	101	The detection of circular features in irregularly spaced data*
G.R.J. Cooper	107	The textural analysis of gravity data using co-occurrence matrices*
Rahul Ramachandran, Sara Graves, Helen Conover and Karen Moe	117	Earth Science Markup Language (ESML): a solution for scientific data-application interoperability problem
Michael Pezzopane	125	*Interpre*: a Windows software for semiautomatic scaling of ionospheric parameters from ionograms*
Allan D. Woodbury	131	A FORTRAN program to produce minimum relative entropy distributions*
Short note		
D.K. Koul, R. Koul and C.L. Bhat	139	A novel method for the identification of zero slope component in a curve*
Book review		
Frits Agterberg	145	Time-Series Analysis and Cyclostratigraphy—Graham Weedon

NUMBER 2

N.C. Bobillo-Ares, N.C. Toimil, J. Aller and F. Bastida	147	FoldModeler: a tool for the geometrical and kinematical analysis of folds*

F. Bilim and A. Ates 161 An enhanced method for estimation of body magnetization direction from pseudogravity and gravity data*

Edgar Dachs 173 PET: Petrological Elementary Tools for Mathematica®: an update*

C.S. Perring, S.J. Barnes, M. Verrall and R.E.T. Hill 183 Using automated digital image analysis to provide quantitative petrographic data on olivine–phyric basalts*

Martin Schlather and Bernd Huwe 197 The use of the language interface of R: two examples for modelling water flux and solute transport*

NUMBER 3

W.G. Rees 203 Least-cost paths in mountainous terrain*

Victor C. Kress, Mark S. Ghiorso and Coby Lastuka 211 Microsoft EXCEL spreadsheet-based program for calculating equilibrium gas speciation in the C–O–H–S–Cl–F system*

Wei Luo, Kirk L. Duffin, Edit Peronja, Jay A. Stravers and George M. Henry 215 A web-based interactive landform simulation model (WILSIM)*

Christian Regli, Lukas Rosenthaler and Peter Huggenberger 221 GEOSSAV: a simulation tool for subsurface applications*

Xin Li, Toshio Koike and Mahadevan Pathmathevan 239 A very fast simulated re-annealing (VFSA) approach for land data assimilation*

A.M. Negredo, J.L. Valera and E. Carminati 249 TEMSPOL: a MATLAB thermal model for deep subduction zones including major phase transformations*

Christophe Pascal 259 SORTAN: a Unix program for calculation and graphical presentation of fault slip as induced by stresses*

Yongwei Sheng 267 Comparative evaluation of iterative and non-iterative methods to ground coordinate determination from single aerial images*

Zhuoheng Chen, Kirk. G. Osadetz, Haiyu Gao and Peter K. Hannigan 281 SuperSD: an object-based stochastic simulation program for modeling the locations of undiscovered petroleum accumulations*

Ute C. Herzfeld, Garry K.C. Clarke, Helmut Mayer and Ralf Greve 291 Derivation of deformation characteristics in fast-moving glaciers*

Franco Biondi and Kishor Waikul 303 DENDROCLIM2002: A C++ program for statistical calibration of climate signals in tree-ring chronologies*

Short note
Abdullatif A. Al-Shuhail 313 A FORTRAN program to determine fracture principal axes from multiazimuthal seismic P-wave AVO data*

Letter to the Editor
Stephen Wise 319 Comment on 'Constant time O(1) pixel averaging with applicability to kernel filtering'*

NUMBER 4

Editorial
Zhilin Li and Christopher Gold 321 Multi-dimensional geospatial technology for geosciences

M.A. Brovelli and M. Cannata 325 Digital terrain model reconstruction in urban areas from airborne laser scanning data: the method and an example for Pavia (northern Italy)

G.X. Liu, X.L. Ding, Z.L. Li, Z.W. Li, Y.Q. Chen and S.B. Yu 333 Pre- and co-seismic ground deformations of the 1999 Chi-Chi, Taiwan earthquake, measured with SAR interferometry

Guoqing Zhou, C. Song, J. Simmers and P. Chen 345 Urban 3D GIS From LiDAR and digital aerial images

Jun Chen, Chaofei Qiao and Renliang Zhao 355 A Voronoi interior adjacency-based approach for generating a contour tree

Qiming Zhou and Xuejun Liu 369 Analysis of errors of derived slope and aspect related to DEM data properties

Connie Ko and Qiuming Cheng 379 GIS spatial modeling of river flow and precipitation in the Oak Ridges Moraine area, Ontario

Jianya Gong, Penggen Cheng and Yandong Wang 391 Three-dimensional modeling and application in geological exploration engineering

WuLixin 405 Topological relations embodied in a generalized tri-prism (GTP) model for a 3D geoscience modeling system

Siyka Zlatanova, Alias Abdul Rahman and Wenzhong Shi 419 Topological models and frameworks for 3D spatial objects

K.T. Chau, Y.L. Sze, M.K. Fung, W.Y. Wong, E.L. Fong and L.C.P. Chan 429 Landslide hazard analysis for Hong Kong using landslide inventory and GIS

NUMBER 5

Khansith Boupha, Jennifer M. Jacobs and Kirk Hatfield 445 MDL Groundwater software: Laplace transforms and the De Hoog algorithm to solve contaminant transport equations*

G.R.J. Cooper and D.R. Cowan 455 Filtering using variable order vertical derivatives

Desmond FitzGerald, Alan Reid and Philip McInerney 461 New discrimination techniques for Euler deconvolution

Can Ulas Hatiboglu and Serhat Akin 471 A new computerized moving stage for optical microscopes

Y.R. Fares and D. Giacobbe 483 Transient transport of reactive and non-reactive solutes in groundwater*

Clement Ogaja 493 Multisource data analysis for geoscience applications*

Scott H. Ensign, Joanne N. Halls and Michael A. Mallin 501 Application of digital bathymetry data in an analysis of flushing times of two large estuaries

Hannes Löser 513 PaleoTax—a database program for palaeontological data*

Peter Gege 523 The water color simulator WASI: an integrating software tool for analysis and simulation of optical in situ spectra*

Eulogio Pardo-Igúzquiza and Francico J. Rodriguez-Tovar 533 POWGRAF2: a program for graphical spectral analysis in cyclostratigraphy*

S.J. Talman, J.J. Adams and R.J. Chalaturnyk 543 Adapting TOUGH2 for general equations of state with application to geological storage of CO_2*

Short note
Joachim Gottsmann, Nicolas Fournier and Hazel Rymer 553 g_log4PDA: an application for continuous monitoring of gravity using LaCoste&Romberg Aliod 100 systems and Palm OS® run hand-held computers*

John C. Tipper 559 Book review

NUMBER 6

Ricardo A. Olea 561 CORRELATOR 5.2—a program for interactive lithostratigraphic correlation of wireline logs*

Mogens Humlekrog Greve and Mette Balslev Greve 569 Determining and representing width of soil boundaries using electrical conductivity and MultiGrid*

Ahmet Karakas and Keith Turner 579 Aggregate supply and demand modeling using GIS methods for the front range urban corridor, Colorado

Derman Dondurur and Coşkun Sarı 591 A Fortran 77 computer code for damped least-squares inversion of Slingram electromagnetic anomalies over thin tabular conductors*

V. Chakravarthi and N. Sundararajan 601 Automatic 3-D gravity modeling of sedimentary basins with density contrast varying parabolically with depth*

Keagan Moodley and Hugh Murrell 609 A colour-map plugin for the open source, Java based, image processing package, ImageJ*

James Gunning and Michael E. Glinsky 619 Delivery: an open-source model-based Bayesian seismic inversion program*

Oswald Marinoni 637 Implementation of the analytical hierarchy process with VBA in ArcGIS*

Oleg M. Rosen, Ali A. Abbyasov and John C. Tipper 647 MINLITH—an experience-based algorithm for estimating the likely mineralogical compositions of sedimentary rocks from bulk chemical analyses*

Carl Axness, Jesús Carrera and Marti Bayer 663 Finite-element formulation for solving the hydrodynamic flow equation under radial flow conditions*

Jordi Casademont, Elena Lopez-Aguilera, Josep Paradells, Alfonso Rojas, Anna Calveras, Francisco Barceló and Josep Cotrina 671 Wireless technology applied to GIS

NUMBER 7

Edzer J. Pebesma 683 Multivariable geostatistics in S: the gstat package*

Alan Witten 693 A MATLAB-based three-dimensional viewer*

Ahmad Zamani and Naser Hashemi 705 Computer-based self-organized tectonic zoning: a tentative pattern recognition for Iran

Boyan Brodaric, Mark Gahegan and Rob Harrap 719 The art and science of mapping: computing geological categories from field data

Ying Xu, Jef Caers and Cristina Arroyo-Garcia 741 Automatic geobody detection from seismic data using minimum message length clustering

E.K. Esawi 753 AMPH-CLASS: An Excel spreadsheet for the classification and nomenclature of amphiboles based on the 1997 recommendations of the International Mineralogical Association*

Irtek Uraz, Serhat Akin and Mustafa Versan Kok 761 On the estimation of kinetic parameters of organic matters using linearization methods*

Dale F. Rucker and Ty P.A. Ferré 767 BGPR_Reconstruct: A MATLAB® ray-tracing program for nonlinear inversion of first arrival travel time data from zero-offset borehole radar*

Short notes

Yun Hong-sic 777 Computer program for datum transformation by a 10-parameter model*

Monika Hoelzel 785 StratDraw: automatic generation of stratigraphic sections from tabulated field data*

L.J. Poppe, A.H. Eliason and M.E. Hastings 791 A Visual Basic Program to Generate Sediment Grain-Size Statistics and to Extrapolate Particle Distributions*

NUMBER 8

A. Zanandrea, J.M. Da Costa, S.L.G. Dutra, R.R. Rosa and O. Saotome 797 Spectral and polarization analysis of geomagnetic pulsations data using a multitaper method

G. Spreitzhofer, C. Fierz and M. Lehning 809 SN_GUI: a graphical user interface for snowpack modeling*

Ye Zhou, John Starkey and Lalu Mansinha 817 Segmentation of petrographic images by integrating edge detection and region growing*

Per Jönsson and Lars Eklundh 833 TIMESAT—a program for analyzing time-series of satellite sensor data*

Bruce M. Eglington 847 DateView: a windows geochronology database*

Ernst Glatzer and Werner G. Müller 859 Residual diagnostics for variogram fitting*

J.P. Le Roux and M. Brodalka 867 An Excel™-VBA programme for the analysis of current velocity profiles*

Carme Hervada-Sala and Eusebi Jarauta-Bragulat 881 A program to perform Wards clustering method on several regionalized variables*

Yoon-Seop Chang and Hyeong-Dong Park 887 Development of a web-based Geographic Information System for the management of borehole and geological data

Justin Taylor, Martin J. Siegert, Antony J. Payne and Bryn Hubbard 899 Regional-scale bed roughness beneath ice masses: measurement and analysis

NUMBERS 9–10

A. Brandelik and H.-J. Massonne 909 PTGIBBS—an EXCEL™ Visual Basic program for computing and visualizing thermodynamic functions and equilibria of rock-forming minerals*

Gilles Grandjean and Sandrine Sage 925 JaTS: a fully portable seismic tomography software based on Fresnel wavepaths and a probabilistic reconstruction approach*

Gerard Lods and Philippe Gouze 937 WTFM, software for well test analysis in fractured media combining fractional flow with double porosity and leakance approaches*

J. Catalão and M.J. Sevilla 949 Inner and minimum constraint adjustment of marine gravity data*

S. Katsev, D.G. Rancourt and I. L'Heureux 959 dSED: a database tool for modeling sediment early diagenesis*

Yongliang Chen 969 MRPM: three visual basic programs for mineral resource potential mapping*

K.F. Tiampo, J. Fernández, G. Jentzsch, M. Charco and J.B. Rundle 985 Volcanic source inversion using a genetic algorithm and an elastic-gravitational layered earth model for magmatic intrusions*

William Cooper and Claire Jarvis 1003 A Java-based intelligent advisor for selecting a context-appropriate spatial interpolation algorithm*

Young-Hoon Kim, Sanjay Rana and Steve Wise 1019 Exploring multiple viewshed analysis using terrain features and optimisation techniques*

Sagi Filin 1033 Surface classification from airborne laser scanning data*

R.D. Van Remortel, R.W. Maichle and R.J. Hickey 1043 Computing the LS factor for the Revised Universal Soil Loss Equation through array-based slope processing of digital elevation data using a C++ executable*

Carlos Henrique Grohmann 1055 Morphometric analysis in geographic information systems: applications of free software GRASS and R*

M. Scott Wilkerson, Joshua M. Wilson, Josep Poblet and Mark P. Fischer 1069 DETACH: an Excel spreadsheet to simulate 2-D cross sections of detachment folds*

Gary L. Pavlis, Frank Vernon, Danny Harvey and Dan Quinlan 1079 The generalized earthquake-location (GENLOC) package: an earthquake-location library*

Zhixiao Xie 1093 A rotation- and flip-invariant algorithm for representing spatial continuity information of geographic images in content-based image retrieval

Fangjun Li, Chris Dyt and Cedric Griffiths 1105 3D modelling of flexural isostatic deformation*

Gyoo-Bum Kim, Jin-Yong Lee and Kang-Kun Lee 1117 Construction of lineament maps related to groundwater occurrence with ArcView and Avenue™ scripts*

1127 Best paper award 2003

AUTHOR INDEX

Abbyasov, A.A. 647
Adams, J.J. 543
Agterberg, F. 145
Akin, S. 471, 761
Aller, J. 147
Al-Shuhail, A.A. 313
Arcasoy, A. 45
Arroyo-Garcia, C. 741
Ates, A. 161
Axness, C. 663

Barceló, F. 671
Barnes, S.J. 183
Bastida, F. 147
Bayer, M. 663
Bhat, C.L. 139
Bilim, F. 161
Biondi, F. 303
Bobillo-Ares, N.C. 147
Boerner, S. 91
Bonham-Carter, G. 1
Boupha, K. 445
Brandelik, A. 909
Brodalka, M. 867
Brodaric, B. 5, 719
Brovelli, M.A. 325

Caers, J. 741
Calveras, A. 671
Cannata, M. 325
Carminati, E. 249
Carrera, J. 663
Casademont, J. 671
Catalán, J.R.M. 33
Catalão, J. 949
Chakravarthi, V. 601
Chalaturnyk, R.J. 543
Chan, L.C.P. 429
Chang, Y.-S. 887
Charco, M. 985
Chau, K.T. 429
Chen, J. 355
Chen, Y. 969
Chen, Y.Q. 333
Chen, Z. 281
Cheng, P. 345, 391
Cheng, Q. 379
Clarke, G.K.C. 291
Conover, H. 117
Cooper, G.R.J. 101, 107, 455
Cooper, W. 1003
Cotrina, J. 671
Cowan, D.R. 101, 455

Dachs, E. 173
Da Costa, J.M. 797
Ding, X.L. 333
Dondurur, D. 591
Duffin, K.L. 215
Dutra, S.L.G. 797
Dyt, C. 1105

Eglington, B.M. 847
Eklundh, L. 833
Eliason, A.H. 791
Ensign, S.H. 501
Esawi, E.K. 753

Fares, Y.R. 483
Fernández, J. 985
Ferré, Ty.P.A. 767
Fierz, C. 809
Filin, S. 1033
Fischer, M.P. 1069
FitzGerald, D. 461
Fong, E.L. 429
Fournier, N. 553
Fung, M.K. 429

Gahegan, M. 719
Gaillot, P. 73
Gao, H. 281
Gege, P. 523
Ghiorso, M.S. 211
Giacobbe, D. 483
Glaízer, E. 859
Glinsky, M.E. 619
Gold, C. 321
Gong, J. 391
Gottsmann, J. 553
Gouze, P. 937
Grandjean, G. 925
Graves, S. 117
Greve, M.B. 569
Greve, M.H. 569
Greve, R. 291
Griffiths, C. 1105
Grohmann, C.H. 1055
Gunning, J. 619

Halls, J.N. 501
Hannigan, P.K. 281
Harrap, R. 719
Harvey, D. 1079
Hashemi, N. 705
Hastings, M.E. 791
Hatfield, K. 445
Hatiboglu, C.U. 471
Henry, G.M. 215
Hervada-Sala, C. 881
Herzfeld, U.C. 291
Hickey, R.J. 1043
Hill, R.E.T. 183
Hoelzel, M. 785
Hong-sic, Y. 777
Hubbard, B. 899
Huggenberger, P. 221
Huwe, B. 197

Jacobs, J.M. 445
Jarauta-Bragulat, E. 881
Jarvis, C. 1003
Jentzsch, G. 985
Jönsson, P. 833

Karakas, A. 579
Katsev, S. 959
Kaymakı, N. 45
Kim, G.-B. 1117
Kim, Y.-H. 1019
Ko, C. 379
Koike, T. 239
Kok, M.V. 761
Koul, D.K. 139
Koul, R. 139
Kress, V.C. 211

Lastuka, C. 211
Le Roux, J.P. 867
Lee, J.-Y. 1117
Lee, K.-K. 1117
Lehning, M. 809
L'Heureux, I. 959
Li, F. 1105
Li, X. 239
Li, Z. 321
Li, Z.L. 333
Li, Z.W. 333
Liu, G.X. 333
Liu, X. 369
Lods, G. 937
Lopez-Aguilera, E. 671
Löser, H. 513
Luo, W. 215

Maichle, R.W. 1043
Mallin, M.A. 501
Mansinha, L. 817
Marinoni, O. 637
Massonne, H.-J. 909
Mayer, H. 291
McInerney, P. 461
Moe, K. 117
Moodley, K. 609
Müller, W.G. 859
Murrell, H. 609

Negredo, A.M. 249

Ogaja, C. 493
Okubo, C.H. 59
Olea, R.A. 561
Osadetz, K.G. 281

Paradells, J. 671
Pardo-Igúzquiza, E. 533
Park, H.-D. 887
Pascal, C. 259
Pathmathevan, M. 239
Pavlis, G.L. 1079
Payne, A.J. 899
Pebesma, E.J. 683
Peña, J.M.V. 33
Peronja, E. 215
Perring, C.S. 183
Pezzopane, M. 125
Poblet, J. 1069
Poppe, L.J. 791
Punongbayan, J.T. 73

Qiao, C. 355
Quinlan, D. 1079

Rahman, A.A. 419
Ramachandran, R. 117
Rana, S. 1019
Rancourt, D.G. 959
Rea, B. 73
Rees, W.G. 203
Regli, C. 221
Reid, A. 461
Rodríguez-Tovar, F.J. 533
Rojas, A. 671
Rosa, R.R. 797
Rosen, O.M. 647
Rosenthaler, L. 221
Rucker, D.F. 767
Rundle, J.B. 985
Rymer, H. 553

Sage, S. 925
Saotome, O. 797
Sari, C. 591
Schlather, M. 197
Schultz, R.A. 59
Sevilla, M.J. 949
Sheng, Y. 267
Shi, W. 419
Siegert, M.J. 899
Simmers, J. 345
Sircombe, K.N. 21
Song, C. 345
Spreitzhofer, G. 809
Starkey, J. 817
Stefanelli, G.S. 59
Stravers, J.A. 215
Sundararajan, N. 601
Sze, Y.L. 429

Talman, S.J. 543
Taylor, J. 899
Tiampo, K.F. 985
Tipper, J.C. 559, 647
Toimil, N.C. 147
Toprak, V. 45
Turner, K. 579

Uraz, I. 761

Valera, J.L. 249
Van Remortel, R.D. 1043
Vernon, F. 1079
Verrall, M. 183

Waikul, K. 303
Wang, Y. 391
Wilkerson, M.S. 1069
Wilson, J.M. 1069
Wise, S. 319, 1019
Witten, A. 693
Wong, P. 91
Wong, W.Y. 429
Woodbury, A.D. 131
Wu, L. 405

Xie, Z. 1093
Xu, Y. 741

Yu, S.B. 333

Zamani, A. 705
Zanandrea, A. 797
Zhao, R. 355
Zhou, G. 345
Zhou, Q. 369
Zhou, Y. 817
Zlatanova, S. 419

KEY WORDS INDEX

(Produced from key words supplied by the author)

3D analysis: 419
3D data structures: 419
3D geoscience modeling system: 405
3D GIS: 345
3-D sedimentary basin: 601
3D topological models: 419
3D topological relations: 405
3D visualization: 887

Activity models of solid solutions: 173
Advection-dispersion: 483
Aerial photographs: 1117
Aeromagnetics: 101, 455
Age: 847
AI: 1003
Algorithm: 391
Allocation: 579
Amphiboles: 753
Analytical hierarchy process: 637
Analytical models: 523
Animal times: 1079
Anisotropy: 1093
Aquifer stratigraphy: 221
Array processing: 1079
Array showness: 1079
Aspect: 369
Automated mapping: 705
Automated moving stage: 471
Automatic plotting routines: 73
AVO: 619

Balanced cross section: 1069
Basalt: 183
Bayesian: 619
Bed roughness: 899
Bedload: 867
Biogeochemical processes: 959
Blackman–Tukey: 533
Body magnetization: 161
Bootstrap: 303
Borehole data: 887
Buckling: 33

C Language: 73
Cappadocia: 45
Carbon: 211
Catalogues: 513
Chair cuts: 693
Chi-Chi earthquake: 333
Chlorine: 211
Classification: 325, 719, 1033

CLAVR: 833
Cleavage: 147
Cluster analysis: 705
Clustering: 741
Code comparison: 663
Cokriging: 683
Colour models: 609
Constraint adjustment: 949
Containment transport: 445
Continuous surface interpolation: 59
Contour tree: 355
Convergent flow: 663
Correlation: 303
Correlogram: 533
COSBALID: 45
Crank–Nicholson: 483
Crevasse patterns: 291
Crushed stone: 579
Crystal size distribution: 183
Cutting: 391

Data analysis: 429
Data assimilation: 239
Data display: 21
Data formats: 117
Data model: 5
Data processing: 1033
Data smoothing: 833
Data standard: 887
Data structure: 391, 405
Database: 847
De Hoog algorithm: 445
Decision aid: 637
Deformation gradient matrix: 291
Dendrochronology: 303
Dendroclimatology: 303
Density anomaly: 249
Depth: 461
Desktop: 847
DGPS: 671
Diagnostic plots: 859
Diapirs: 33
Digital building model: 345
Digital elevation model: 59, 203
Digital mono-plotting: 267
Digital terrain analysis: 369
Digital terrain model: 345, 369
Dijkstra algorithm: 203
Displacement: 985
Displacement field: 333
Divergent flow: 663
Dtm: 455

DTM extraction: 325
Dynamic updating: 405

Earthquake location: 1079
E-commerce: 671
Edge operator: 817
Eigenvalue analysis: 291
Eigenvector: 637
Elastic plate: 1105
Elastic-gravitational layered earth model: 985
EM 38: 569
Equations of state: 543
Error assessment: 369
ESML: 117
Estuary: 501
Evidence theory model: 969
Experimental petrology: 211
Expert systems: 561, 1003
Extended: 461

Fast Fourier transform: 881
Fault model: 333
Fault-related fold: 1069
FFT: 899
Field data: 5, 719
Finite elements: 33, 663
Fluorine: 211
Flushing time: 501
Folding: 33, 147
Fold-thrust belt: 1069
FORTRAN 77: 591
FORTRAN code: 131
Fortran program: 881
Forward modeling: 1069
Fractured aquifer: 937
Fractured reservoirs: 91
Function fitting: 833
Fuzzy logic: 91

GDF: 671
General C-F model: 969
Generalized tri-prism (GTP) model: 405
Generalized wards method: 881
Generic Mapping Tools: 73
Geochronology: 21, 847
Geographic images: 1093
Geographic Information Systems: 1055
Geoid: 949
Geological exploration engineering: 391
Geological functions: 887
Geological mapping: 5, 719
Geology: 429
Geomagnetic pulsations: 797
Geophysics: 107, 925
Geostatistics: 221, 619
Geothermobarometry: 173, 909
GIS: 5, 45, 379, 501, 569, 637, 969
GIS applications: 1043
Glaciology: 291
GLCM: 107
GPS: 333

Grain boundary detection: 817
Graphical user interface: 767
GRASS-GIS: 1055
Gravity: 949
Gravity and magnetic anomalies: 161
Gravity change: 985
Gravity data: 101
Gravity modeling: 601
Greyscale: 609
Gridding algorithms: 59
Ground water: 445
Groundwater yield: 1117
GUI: 809

Hazard map: 429
Heterogeneity: 221
Heterogeneous transmissivity: 663
Hilbert: 461
Histogram: 21
Hong Kong island: 429
Hough transform: 101
Hydrogen: 211
Hydrogeological map: 1117
Hydrogeology: 937
Hydrology: 379

Ice sheets: 899
IEEE 802.11: 671
IMA: 753
Image analysis: 183
Image enhancement: 609
Image processing: 345
Image retrieval: 1093
Immediate adjacency: 355
Inclination: 461
Interactive graphics: 859
Interchange technology: 117
Interior: 355
Interoperability: 117
Interpolation: 609
Interpolation method: 345
Interpolation selection: 1003
Invariant analysis: 291
Inversion: 131, 523, 619
Ionogram scaling: 125
Ionosonde: 125
Ionosphere: 125
Irregularly spaced data: 59
Isostasy: 1105
Iso-surfaces: 693
Iterative photogrammetric method: 267
Iterative ray-tracing method: 267

Java: 471
Java and Jess: 1003
Java visualization: 809

Kinetic model: 761
Kriging: 683

Land surface model: 239
Land use: 637

Landscape ecology: 1043
Laplace transform: 445
Least squares: 761
Least-cost path: 203
Least-squares inversion: 591
LiDAR: 325, 1033
Lineament density: 1117
Lineament detection: 45
Lineament extraction: 1117
Linear model of coregionalisation: 683
Lithostratigraphy: 561
Logarithmic transformation: 663

Markov Chain Monte Carlo: 281, 619
Mathematical geophysics: 985
Mathematical modelling: 147
Metal and nutrient cycling: 959
Meteorology: 379, 1003
Microwave remote sensing: 239
Milankovitch cycles: 533
Mineral: 753
Mineral formula calculation: 173
Mineral grain: 817
Mineral resource assessment: 969
Mineral resource potential mapping: 969
Mineral solid solutions: 909
Mineral-chemical plots: 173
Mineralogical compositions: 647
Modeling: 391
Modes: 647
Monte Carlo: 767
Morphometric analysis: 1055
Mountain paths: 203
Multi-continuum: 937
Multi-criteria analysis: 637
Multi-grid: 1105
Multiple viewpoints: 1019
Multitaper: 797
Multiwavelets: 797

Natural terrain landslides: 429
NDVI: 833
Neotectonics: 705, 1055
Newton's forward difference approximation: 601
NOAA AVHRR: 833
Non-integral flow dimension: 937
Nonlinear inversion methodology: 985
Nonlinear optimization: 1079
Norms: 647
Numerical differentiation: 591
Numerical model: 1105
Numerical modelling: 543

Object-oriented models: 419
Ocean Drilling Program: 73
Oceanography: 493
Olivine: 183, 249
Online parameter repository: 959
Ontology: 5
Open source: 619
Open-source software: 683, 1055

Optimisation: 1019
Optimization: 767
Outlier detection: 859
Oxygen: 211

Palaeontology: 513
Paleoclimate: 493
Parabolic density contrast: 601
Partition: 391
Pattern recognition: 741
PDA: 671
Perfect tabular conductors: 591
Periodogram: 533
Petrochemistry: 647
Petrographic mode: 183
Phase equilibria: 909
Phase transitions: 249
Phenology: 833
Physiology: 203
Pit: 579
Point-like feature: 45
Polar coordinates: 663
Polarization analysis: 797
PostScript: 561
Primary variables: 543
Principal Component Regression: 303
Probabilistic: 131
Probability density distribution: 21
Pseudo-colouring: 609
Pseudogravity transformation: 161

Quarry: 579
Quasi tri-prism volume model: 391

R: 859
R programming environment: 197
Radial flow: 663
Radio-echo sounding: 899
Rank order: 91
Ranking: 91
Raster data: 501
Ray-tracing method: 267
Reaction kinetics: 959
Reaction region: 761
Reaction-transport modeling: 959
Real-3D GIS: 405
Recumbent folds: 33
Region labeling: 817
Regionalized variables: 881
Relative entropy: 131
Remnant magnetization: 161
Research: 513
Reservoir characterization: 741
Resource assessment: 281
Rotation invariant: 1093
RUSLE: 1043

S language: 683
Sand and gravel: 579
SAR interferometry: 333
Seasonal variations: 493

Seasonality: 833
Sediment transport: 867
Sedimentary petrology: 647
Seed region: 817
Segmentation: 1033
Seismic interpretation: 741
Seismic zoning: 705
Seismics: 619, 925, 1079
Seismotectonics: 705
Self-organizing map: 719
Sequential indicator simulation: 221
Servo-motors: 471
Settling velocity: 867
Shear velocity: 867
Simulated annealing: 239, 767
Single-ray backprojection: 267
Skin effect: 937
Slices: 693
Slingram anomaly: 591
Slope: 369
Snow cover: 809
Snowpack parameters: 809
Soft kriging: 221
Software: 221, 847
Soil boundary width: 569
Soil erosion: 1043
Soil mapping: 569
Soil moisture: 239
Solute-transport: 197
Space-geodesy: 493
Span and Wagner EOS: 543
Spatial analysis: 379
Spatial dependence: 859
Spatial operations: 419
Spatial relations: 355
Spatial resource distribution: 281
Spatial variability: 197
Spectral measurements: 523
Spectrogram: 533
Spinel: 249
Spreadsheet: 753
Statistics: 91, 379
Stereological measurements: 471
Stochastic: 619
Stochastic conditions: 197
Stochastic simulation: 683
Strain: 147
Structural formula: 753
Structural geology: 147, 1069
Structural index: 461
Subduction: 249
Sulfur: 211
Surface specific features: 1019
Suspended load: 867

Taxon: 513
Tectonic stress, Fault slip directions,Subsurface faults, Uncertainties, Graphical output: 259
Temperature: 249
Thermochemistry: 211
Thermodynamic calculation of mineral equilibria: 173
Thermodynamic functions: 909
Thin sections: 471
Three dimensions: 693
Time series: 493
TIMESAT: 833
Tomography: 925
Topography: 59, 1019
TOUGH2: 543
Tracer: 483
Transition zones: 569
Traveltimes inversion: 925
Truncation error: 483
Turkey, 45
Tychonov regularisation: 325

Uncertainty: 767
Unix system: 561
Unix/Linux: 73
Urban areas: 325

Validation: 949
Variogram: 1093
Variogram cloud: 859
Variogram modeling: 221
Vector data: 501
Viewshed: 1019
Visual Basic: 125
Visualization: 693
Volatiles: 211
Volcanology: 211
Voronoi diagram: 355

Water: 523
Water flow simulation: 197
Water system: 379
Watershed modeling: 1043
Web-based GIS: 887
Weighted correlation coefficient: 561
Weights of evidence model: 969
Well hydraulics: 663

XML: 117